The Herald's Farming News



## Hog Raising In Irrigated Regions

By H. H. Schutz.

THE advantages, given by H. M. Cotwell in a Colorado bulletin, on hog raising in that state apply with equal force to the conditions existing in this portion of the southwest. Barley, here, as well as in Colorado yields well, is cheap to produce, and the product, barley-fed pork, commands the highest price in every market on account of its flavor. Field peas also yield well and are cheaply grown, producing some of the best flavored pork. The flavor imparted by alfalfa pasturage is well known and the gains in weight are most satisfactory when hogs are allowed to forage on it. For dry land farming, barley, milo maize and wheat are profitable hog feeds and sure crops ordinarily.

**Barley Raised Cheap.**

It is cheaper to raise barley under irrigation than corn in the Mississippi valley states and it will produce more pork. It has been found that 500 to 1000 pounds gain in weight during a season is not unusual for hogs pastured on alfalfa, and greater yields have been recorded. In Colorado, including the rent of the land, it costs $3 to $6 to raise an acre of field peas, which when pastured will produce 400 pounds of pork.

For packing, a fat blocky hog weighing alive 220 to 250 pounds is desired. In the winter time there is a demand by city trade for well finished hogs weighing from 150 to 175 pounds. Cured hams weighing 16 to 18 pounds and sides of bacon weighing 10 to 12 pounds may be secured from hogs weighing alive 220 to 250 pounds. Weights like these secure a premium of 75 cents a hundred pounds over lighter hams and sides.

**Only Finished Hogs Wanted.**

It is only the well finished hog that is wanted, hogs that are fat and well rounded out, with the flesh coming well down on the hocks and fat on the sides 1 to 1 1-2 inches thick. The flesh of a finished hog is firm and hard to the touch and the hair is smooth and lustrous. The best consumers want a proportion of lean meat.

A well finished hog will dress 80 per cent. Hogs that are stunted during the summer do not finish well, and an unfinished hog weighing 150 pounds will dress only about 65 per cent. Because the bacon from unfinished hogs cooks to skin and soft, flabby meat, it sells at wholesale for one-half that from finished ones.

The meat from an unthrifty hog is always soft and unusually so from a thin one, and the flesh on the live unfinished hog is soft and flabby and the hair has a dead appearance. Hogs that are of uneven quality are sometimes included in the same shipment, which, unless the market is pressing, sell for the price of the poorest. Every hog raiser should spend a day in the market with stock yard and packing house experts and learn the touch and appearance of a choice hog. In the packing house too he can see the difference in the cuts secured from fattened and unfinished hogs.

**The Best Breeds.**

The four breeds that are given by Mr. Cottrell as being best adapted to Colorado conditions are ones that also give satisfaction when raised here: Berkshire, Duroc-Jersey, Poland-China and Tamworth.

There are greater differences in hogs of the same breed than betwen choice animals of different breeds, and the best breed is the one the grower likes best and gives his best attention. The feeder should select a breed and stay with it and not cross breeds.

White hogs have tender skins which are blistered and cracked by the intense sunshine, running sores often forming and many become runts. They have been profitably raised in Colorado by pasturing them where there is heavy shade.

**Berkshires Hardy.**

The Berkshire is an energetic and hardy animal that adapts itself to any condition suitable for hog raising. By varying the feed they may be developed into bacon or lard hogs. It is a good hog for following cattle in the feed lot and its activity gives it a good muscular system that produces a good proportion of lean meat. It is a good feeder, matures early, and may be fattened at any desirable age. The sows are good mothers, and originally the Berkshire was very prolific, but due to breeding for prize-winning some families have become shy breeders. Therefore in selecting animals for breeding, care should be taken to secure those from prolific ancestors.

The Berkshire has fat and lean well distributed in the meat, has short head, nose and legs making waste. It has black and white on the face, feet and tips of tail, and is an attractive hog generally.

**Duroc-Jerseys.**

The Duroc-Jersey is a red, smooth, thick-meated hog and typically of the lard kind. It is active, hardy, a good feeder and grazer and when well fed it matures early and becomes very heavy when full grown. It is a prolific breed, averaging nine pigs to the litter. In Colorado, mature sows are managed to produce two litters a year. The carcass often has more bone than either the Berkshire or Poland-China, with meat often not so fine grained. Coarseness of bone and hair, particularly of the hair along the back, should be avoided. Breeding animals should have strong pastures; Duroc-Jerseys are apt to be weak in this respect.

**Poland-Chinas.**

Mr. Cottrell describes the Poland-China as an almost perfect meat making machine, not excelled by any breed of any kind of live stock for converting feed into flesh. It has a great appetite, good digestion and is laxy. With proper treatment it can be marketed any time after six months old. Typically a lard hog, it has a thick, short, massive body, fine bone, hair and skin, small head and short legs. It has thick flesh and heavy shoulders and hams, and broad, thick loins, but matured animals have too large a proportion of fat. Overfeeding of corn has a tendency to make the Poland-China a poor breeder, a good feeder giving birth to but one to four pigs in a litter in such cases. If they are selected from good prolific strains and fed muscle and bone making feeds, they are as prolific as any breed, averaging 7 1-2 pigs to the litter.

**A Bacon Hog.**

The Tamworth is a bacon hog and looks like a "razor back." It has a smooth, long, deep, thin body and has been bred to yield as large a weight as possible of choice bacon. On the Colorado Agricultural College farm, the Tamworth sows average ten live pigs per litter. A two-year-old sow weighing 750 pounds had 18 live pigs at one farrowing, one fully matured sow can produce two litters a year. At the Iowa Agricultural College, a sow of this breed raised 33 pigs in one year. The Tamworth is solid red in color, hardy, active, good on pasture, has a large proportion of lean meat and produces large litters. The lard hog can stand a period of neglect, but the Tamworth hasn't the fat to carry him over, is apt to be stunted if not properly cared for.

**Clean Water Needed.**

Feeding hogs with rations that are rich in protein, as are the staples of the irrigated regions, causes them to drink larger quantities of water than when fed on starchy feeds like corn. They should therefore have access to clean water. Irrigation ditches or streams are great carriers of disease and hogs should be kept away from them. It is convenient where water is not handy in pastures to mount a barrel upon a small sled and carry it this way to the hogs waterer. When a hog has to travel some distance to water, he is apt to overload himself instead of drinking small quantities often.

**Rolled Grain Best.**

The grain in semi-arid regions is harder than that grown in humid parts, and it is therefore not economical to feed it dry and whole. Rolled grain is better than the ground kind. At the Colorado station it was found that ground barley was one-half better than whole bald barley; that ground feed barley was one-twelfth better than whole-fed barley, and that ground corn was one-fifth better than whole corn. Soaking grain 24 to 48 hours gives the effect of grinding, but in hot weather the grain may sour or freeze in cold weather before it is eaten. Cooking grain reduces the food value.



## *Dry Farming As Crop Insurance*

*By Prof. E. J. Iddings, Field Commissioner Dry Farming Congress*

Dry farming is crop insurance in districts where the annual precipitation ranges from eight to 20 inches, provided certain principles and methods are followed. There is nothing mysterious about the art, nor does even the most enthusiastic dry farmer claim to be able to raise crops without moisture. Dry farming at its best is moisture conservation, which is brought about by plowing, smoothing, packing, cultivating and cropping to insure the reception and preservation of the largest possible amount of natural rainfall. In plowed land on the prairies, where the surface is made fine for a mulch, moisture rapidly penetrates and permeates the soil and within a few months can be found continuous to a depth of from 30 to 50 inches, while on contiguous sod it is rare that five inches of moisture can be found in the summer months. The so-called "Missouri test" will satisfy the most skeptical.

The land must be plowed to sufficient depth to offer a body of loose soil for the reception of rainfall. Newly plowed land should be packed or made reasonably firm to prevent drying out by air and wind. The dust mulch, kept from one to six inches deep, depending on soil and climatic conditions, is an important feature. It acts as a blanket to preserve the moisture below and is essential in any dry farming region. Not only does the practical farmer recognize the value of the mulch, but also scientists have handled huge tanks of soils, arranged with windlasses, to enable daily weighings. Some of the soil tanks are cultivated, others are left to form a crust on the top layers. The invariable results of these experiments show that the saving of moisture depends wholly on the depth and fineness of the dust blanket maintained over the lower soil layers.

**Seed Essential.**

One of the essentials of handling land in regions of limited rainfall is seed, plant and crop selection. Plants grown in humid lands or under irrigation are not adapted to and cannot succeed under dry farming. It is possible, of course, to slowly acclimate such plants to the semi-arid conditions, but meanwhile the crops are small and unprofitable. Not only the various state and federal experimental stations, but private individuals, are taking up the work of adapting, by breeding and selection, grains, grasses and forage crops to the use of the dry farmer.

The same methods do not succeed equally well in the various parts of the dry farming belt. The system that will bring heavy returns to the wheat farmers of the Palouse country in eastern Washington, would probably need to be much revised for New Mexico or Arizona. In some districts of the semi-arid belt profitable crops can be assured practically every year by using the essentials of the dry farming system. In other regions biennial cropping is necessary. The rain of one year must be stored and saved by summer cultivation and this added to the next year's precipitation to grow a profitable crop. The latter plan has proved successful in the Big Bend wheat district and other parts of Washington and in some of the grain belts of Oregon and California.

**Dry Farming Limits.**

To set the limits that make it necessary to substitute dry farming for the methods of the rain belt, and to set those that call the halt on any kind of culture and make way for the cattleman and sheepmen is difficult. Many factors enter into the problem for the practice of the dry farming system. A retentive soil underlaid with tight sub-soil is far more favorable to crop production than either sandy surface or sandy sub-soil. Amount of sunshine, wind velocity, average temperatures, amount of evaporation and distribution of rainfall throughout the year are features that must be considered.

**Peculiar Problems.**

The southwest has some peculiar problems. A great deal of rain comes in the summer and fall. A light rainfall on the burning prairies is quickly heated and rapidly dissipated. A heavy rain is largely lost in runoff. Natural soil moisture is rapidly diminished by heavy evaporation, estimated at from 70 to 90 inches a year, from the exposed surface of a tank. Light rain and snowfall in winter make the winter grains ordinarily unsuccessful and make impossible the staple crop of the dry farmer, winter wheat. The spring winds drift the dust mulch and make "blowing" the problem of the southwest.

The writer made an extensive trip through the southwest last August and found many interesting conditions. One farmer, near Melrose, N. M., had a field of alfalfa nicely started. He was a man of slender means but of considerable resourcefulness. He had no grass seeder and to get the alfalfa seed evenly distributed he shook it from the perforated lids of large baking powder cans held in either hand while riding the disc. A younger brother walked behind and drove the team.

**Arizona Work.**

In the Sulprur Springs valley, near Douglas, Ariz., excessive evaporation and great range in daily maximum and minimum temperatures have been climatic factory in plant growth. Excessive heat by day and then sudden change to cold nights was very unfavorable to plant growth. Record kept at the Copper Queen smelter at Douglas show that the average net decrease in extremes of temperature in that valley within the last 15 years has been 14 degrees. This is probably due to greater growth and extent of vegetation and to the pall of smoke thrown over the valley by the huge smelters. The normal precipitation at Douglas is 16.21 inches.

In Texas, the cattle king with his domain of from 100 to 200 sections of land, is rapidly giving way to the settler. The Texas cattle industry has depended on long time leases from the state. As rapidly as the leases expire the lands are offered for sale to sealed bidders. In former years no one bid for the land, and the cattleman released for another long term of years. The cost was from $15 to $20 a section annually. Within the last four years these lands have been purchased by an incoming rush of settlers and speculators as soon as the leases have expired. As a result the kingdom of cattle is a thing of the past in western Texas, the former paradise for the kings of this great industry.

There are yet many holders of from 20 to 40 sections, but these can claim no dignity. In the vernacular of the Lone Star state such holders are only "squatters" and do not at all fit in with the old ideas concerning this land of wonderful mirages, magnificent distances and bigness of things in general. This region, as a dry farming belt extends from El Paso, on the Rio Grande, eastward almost to San Antonio. The rainfall at El Paso is from eight to 10 inches annually and progressively increases to about 20 inches at Midland and to above 25 inches at San Antonio.

**Summer Rain.**

In the southwest and generally south of the southern boundary of Colorado, the major portions of the precipitation come in summer. There the fall and winter grains have not been found successful. The district seems especially adapted to the saccharine and non-saccharine sorghums, to Indian and broom corn, to melons and beans and some kinds of small fruits. The quick growing late summer crops have given the best satisfaction.

North of the last mentioned line, the greater portion of the rainfall comes in winter and spring, when snowfall is also extensive. This is the home of the fall grain crops and the big problem of the farmer is to conserve the winter precipitation far enough into spring and summer to mature fall or early spring sown crops. Sorghums have also been successful. Alfalfa seems to promise a great deal of success in some sections, but the cereals are considered as standard to the region. Wheats, barley, rye, emmeridian corn and other crops that flourish under similar environment have been grown for years without irrigation in extensive districts of Washington, Oregon, Idaho, Wyoming, Montana, Utah, Colorado, Kansas, Nebraska and the Dakotas, also in the provinces of Alberta, Saskatchewan, Manitoba and British Columbia.

**Rule of Rainfall.**

Dry farming experts have not entirely agreed to the upper and lower regions of precipitation for defining dry farming territory. The old rule was: "Any region having an annual average precipitation above eight and below 20 inches." To this was added the following clause: "Providing no moisture is received from seepage or sub-irrigation." The board of governors of the Dry Farming congress have promulgated the following rules in regard to products exhibited at the third International Dry Farming exposition to be held in Spokane, Wash., October 3 to 8: "Exhibits will be accepted in the International Dry Farming exposition from that territory in the United States including and west of the 98th meridian and up to and including the 121st meridian, and from sections and communities outside the limits of the United States where the annual precipitation averages under 20 inches, providing such products have not been grown upon irrigated, sub irrigated or seepage land."

Possibilities of development of such lands as come within the limits of the rule quoted almost stagger the imagination. It has been conservatively estimated that 200,000,000 acres of land await development within the semi-arid regions of the United States alone. This area, once it is occupied by a successful and contented and prosperous agricultural class, will mean annual or at least semi-annual crops from this vast empire now largely in virgin sod. The conversion of such lands from raw prairie to agricultural holdings will mean the addition, at low estimate, of $20 an acre to their value, or $4,000,000,000, to the aggregate agricultural wealth, west of the 100th meridian. It will also mean an independent farm home on at least each 320 acres, or 600,000 additional farm homes.

**World's Semi-Arid Lands.**

America, however, offers only a comparatively small portion of the world's semi-arid lands. Canada, Mexico, the Argentine, Brazil, South Africa, Australia, Turkey, Persia and Austro-Hungary have hundreds of millions of acres more. Some authorities estimate the available acreage for scientific conservation of soil moisture at 5,000,000,000. Nearly all of these countries are fast awakening to the possibilities of the dry farming movement in providing homes for increasing populations and for the use of these lands as a means of increasing agricultural wealth and of producing bread for the coming generations.

The Dry Farming congress is one of the newest of old movements. Moisture conservatism was practised by the growers of grapes and olives of northern Africa in the days of old Carthage; the Navajos grew beans and corn in the southwest by dry farming methods probably before the discovery of America; the Mexicans and Papago indians of Sonora in Old Mexico were growing crops by carefully saving the natural rainfall for them, when the American nation was yet a struggling infant. Neither is dry farming a new process in the northwest. Enormous crops have been produced in Washington and California by its use. In some districts these methods have been in vogue for 40 years.

**Forty-seven Years at It.**

Bishop George Farrell, of Cache county, Utah, has practised dry farming 47 years. He learned a valuable point by accident. He sowed 92 acres of land to wheat at the rate of a bushel and a peck to the acre and had only four bushels left to sow the eight acres remaining in the field. He seeded these with the four bushels. When harvest time came Bishop Farrell reaped 17 bushels an acre from the 92 acres and 27 bushels each from the eight acres. He ascribes much of his many years of success to the discovery of the value of thin seeding.

Any system or method of doing things, however, needs to be made known so that it may be of benefit to the greatest number. The first publicist of the dry farming movement and one who has done incalculable good in aiding the development of western agriculture, is H. W. Campbell, of Lincoln, Neb. Prof. Campbell discovered the value of a firm soil for the saving of moisture and has made a special study of packing, also inventing a special tool for firming the under soil layers. He also did a large share of the work in promulgating the ideas as to proper plowing, cultivating and preperation and preservation of soil moisture. He succeeded in interesting the railroads in his ideas and was the first lecturer on dry farming methods.

**The Two Big Movements.**

Irrigation and dry farming are the two big agricultural movements of our generation. Both are necessary; each is supplementary to the other. It is estimated that the present irrigated area is 15,000,000 acres. Economy of water and utilization of water now wasted may treble or quadruple that area, but even then three-fourths of the fertile plains of the west will be outside of the bounds of possible irrigation. Both systems aim at conservation of water for growing crops.

The dry farmer, however, must do with less water and must be less wasteful than the irrigationist. As each becomes more proficient in his art the two systems are made to approach more nearly together. In northern Colorado, the early farmers never thought of attempting to grow winter wheat without three or four irrigations. Now they use but one irrigation and occasionally mature the crop with natural rainfall. Experts are continually cautioning the farmers under irrigation systems to use less water and use it more carefully and wisely.

The skillful dry farmer is learning year by year little details of management that mean greater efficiency and he allows a lower percentage of waste of the moisture given him by nature. Time will bring such value to irrigating waters that the farmer will need to exercise greater economy to grow crops profitably. It is no idle prediction that in coming years the moisture conserving methods of the dry farmer will be used in many irrigation districts where irrigation is now held as all-sufficient. Likewise the dry farmer by use of windmill or gasoline engine will often be able to pump from wells or stream beds and irrigate lawns, gardens and small fields. There need not exist any other relation except the closest and most intimate between irrigation and dry farming.

**Discouraging Factors.**

It is useless to deny that there are discouraging factors in this great movement of which we speak. A certain amount of legitimate advertising is desirable and necessary but it is an unwise economic policy for a new community to divert so much of its energy from plowing and harrowing and consume it in angling for the patronage of the land-hungry newcomer.

The optimism of some of the new settlers of the dry lands in the west is almost pitiful. The writer was approached last fall by a former music teacher of Boston, living on 80 acres in the raw sod in northeastern New Mexico. This settler wanted advice as to whether $100 a month net returns could be expected from his land the coming year. Some new communities need to have a few feathers plucked from the wings of their imagination and placed in the tail of good judgment. In many districts there is too much horse back farming and too much expectation from the expenditure of little labor.

Eeverywhere there are complicated problems of soils and sub-soils, of crop adaptation, of plowing, cultivation and handling of crops, and nowhere has the importance and need of livestock in the dry farming program been fully appreciated. But these conditions are far from hopeless. The impractical and overhopeful clerk-farmer will return to the quiet east, where he properly belongs, and the over-zealous promoter will pass on to the other fields of exploitation. Everywhere the rain gage will be applied and give the farmer a measure of available moisture for growing and maturing crops.

**Pluck, Science and Genius.**

The pluck and science and the genius of man will in time bring to practical solution the problems of the semi-arid areas, and the dormant responsibilities will respond many fold to the touch of his genius guiding hand.

Officers of the congress are glad to be able to announce that the year's returns thus far received have not only sustained all the contentions of dry farming experts but has also greatly strengthened the dry farming movement. From all points of the compass and from widely separated dry farming districts comes the same story. The careless farmers are losing their crops as their lands have not been prepared to retain moisture and withstand drouth. On the other hand, the practical dry farmer will have profitable returns in many cases and in no instance so far reported will the real dry farmer be unable to gather sufficient harvest to support his family and keep his livestock over winter.

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